

ABSTRACT OF THE DISCLOSURE

Described is a manufacturing method of a semiconductor integrated circuit device by depositing a silicon nitride film to give a uniform thickness over the main surface of a semiconductor wafer having a high pattern density region and a low pattern density region. This is attained by, upon depositing a silicon nitride film over a substrate having a high gate-electrode-pattern density region and a low gate-electrode-pattern density region by using a single-wafer cold-wall thermal CVD reactor, setting a flow rate ratio of ammonia (NH_3) to monosilane (SiH_4) greater than that upon deposition of a silicon nitride film over a flat substrate.